

10TH MAY 2010

WAU SMALL SCALE  
MINING TRAINING  
CENTRE.  
PAPUA NEW GUINEA



SIDS-18  
NEW YORK

# Paper on Challenges and Achievements on Small scale mining and Gender. Papua New Guinea

Immaculate Javia and Paulina Siop

## **PAPER ON SMALL SCALE MINING AND GENDER IN PNG**

### **Summary**

Papua New Guinea as a Small Island Developing State (SIDS) and part of the international community has an obligation in implementing international agreements such as the Mauritius Strategy of Implementation of the Programme of Action for the Sustainable Development of SIDS, Johannesburg Plan of Implementation on Mining, Agenda 21 and other UN conferences and summits to achieve sustainable development. Despite limits in financial resources, technology, poor governance, political hiccups and corruption to name a few, we acknowledge that meeting the international, regional and national goals such as the Millennium Development Goals and Medium Term Development Strategy (MTDS) respectively, we can achieve sustainable development.

Papua New Guinea with the aid of international communities has demonstrated their commitment to sustainable development through the utilization of our own resources. Our international and national partners have provided financing and technical assistance in sectors such as mining, agriculture, fisheries and forestry to address sustainability issues. In addition, some major challenges/issues and suggestions to overcome these issues will be mentioned.

This paper will particularly highlight concerns in small scale mining hindering sustainable development issues in rural Papua New Guinea. Some achievements and ways forward aided by donor agencies and nationally owned organizations addressing sustainability issues in the mining sector specifically on Small Scale Mining industry will also be pointed out.

As far as the United Nations Declaration on the Rights of Indigenous People is concerned, Small Scale Mining in Papua New Guinea, which is mostly comprised of indigenous people, deserves the right to be accorded due recognition by the Government of Papua New Guinea and international assistance to support current initiatives for this rapidly growing industry.

### **Introduction**

Small scale mining is regarded a dangerous and hazardous work and is seen to be practiced in the most remote and rural areas of Papua New Guinea. There are no actual figures on the population of small scale miners but it is estimated that around 70,000–100,000 small scale miners of which 20% are female and 80% are male exist throughout the country. Approximately 80%-90% of miners are categorized under low literacy to illiteracy levels. Most of these miners with their families are exposed to very harsh working conditions and health risks to make their living (?).

Small scale mining is an economic activity that significantly contributes to the rural economy of Papua New Guinea and is very common in all mining communities. Unlike other income earning activities, surveys conducted by the Small scale mining training centre indicated that a saving culture is almost absent in small scale miners. Issues such as occupational health and safety, well-fare, unsafe mercury usage, environmental impacts and social disruption, to name a few, are of great concern in the small scale mining sector. Associated with these concerns are other cross-cutting issues such as violence and prostitution, HIV/AIDS, gender equality, child labour, family breakdown and law and order problems. In areas where large scale mining activity takes place, illegal small scale mining activities coexist leading to land disputes and violence. Illegal mining activities, wide unsafe use of mercury, gold smuggling, and severe environmental impacts are increasing rapidly because of the fact that small scale mining is not regulated in the country.

A number of National and international initiatives have been taking place in the country to fund and facilitate projects and programmes to address these growing concerns. An educational project was funded by AusAID, PNG Government and private companies regarding safe mining practices. Asian Development Bank (ADB) and Japanese Social Development Fund (JSDF) funded by the World Bank Project also assisted meaningfully. A current program that has a very significant and notable impact on the lives of these indigenous people and others alike is the Small Scale Mining Training Centre based in Wau, a mining township well-known for early mining in the colonial era. The program is an initiative of the Mineral Resource Authority of Papua New Guinea and funded by European Union's Mining Sector Support Program. It is managed by Projekt-Consult of Germany, a leading institution dealing with issues in small scale mining throughout the world.

The main concern regarding the Training Centre is its sustainability after European Union ceases funding. Will the responsible Authority which is Mineral Resource Authority of Papua New Guinea and other stakeholders be able to carry on with what European Union has started? Will the training centre be able to contribute to a sustainable future for the tens of thousands of indigenous small scale mining communities throughout Papua New Guinea?

The government of Papua New Guinea, our international partners, NGOs and other stakeholders' support is greatly needed to address many of these challenges to achieve our goals and visions of sustainable development stipulated in Papua New Guinea's National Constitution.

#### **BRIEF HISTORY OF SMALL SCALE MINING IN PAPUA NEW GUINEA**

Small scale mining may have started as early as 1988 when gold was first discovered on Sudest Island, an island on the eastern end of Papua New Guinea. This was followed by other discoveries in other parts of the country that resulted in a gold rush in Wau and Bulolo gold fields. The gold rush then developed into a dredging operation and later into small mining operations using simple hydraulic pressure methods. Laborers brought from other parts of the country by colonial explorers were taught how to use simple panning and sluicing methods. These simple methods of mining have been used for generations and are still being used. Modern and mechanized methods of mining are practiced by very few small scale miners who can afford machinery. Events in small scale mining since the first discovery in Wau are tabulated in the table below.

Table 1: The events which took place in the history of Mining in PNG.

Period	Events	Challenges faced by miners.
1922 - 1927	– Significant gold discovery in areas around Wau, led to gold rush in the area which attracted a large number of miners, entrepreneurs, indentured labourers and just adventurers from all over the world. Mining leases were held by expatriates, nationals worked as tributors or labourers.	Most local people and laborers were not allowed to mine. A lot of them did not know the techniques of mining. No women were allowed .
1930s	– Commencement of large-scale development of the alluvial gold resources in Bulolo and Wau areas. Mining leases were held by expatriates, nationals worked as tributors or labourers	Many local miners were observers and laborers who started to learn through observation. No women were allowed.

1950 - 1960	<ul style="list-style-type: none"> <li>– Many national miners applied for both old and new mining leases. National miners started to work independently on their mining leases.</li> <li>– Large scale alluvial mining operations closed in Bulolo.</li> </ul>	Male miners were dominant. Few women started to go into the field, observed and copied from male miners. And they got help from some sympathetic miners and started mining themselves.
1970s, 1980s, 1990s.	<ul style="list-style-type: none"> <li>– Large scale alluvial mining operations closed in Wau.</li> <li>– Expatriate miners started to leave in anticipation of independence.</li> <li>– The nationals took over the expatriate owned mining leases.</li> <li>– The large national population attracted to these mining fields remained. In addition more people migrated to the area thereby population increased significantly.</li> <li>– As the population increased, many mining activities occur</li> <li>– Spread of small scale mining activities to other provinces.</li> <li>– Gender equality was evident.</li> </ul>	Impact of political and socio-economic changes adversely affected the mining communities. Resulted in unemployment and a general decline in the economy, public and private services, and law and order. Women in particular faced a lot of socio-economic hardships and they were forced by ' <u>need</u> ' to turn to mining for survival. majority of male miners started working together with the few women.

## CHALLENGES IN SMALL SCALE MINING THAT PREVENT ACHIEVEMENTS IN SUSTAINBLE DEVELOPMENT.

### Occupational Health, Safety and Hygiene

According to past records from the mining industry in Papua New Guinea, the small scale mining (SSM) sector has a very poor safety record. Many miners die or sustain critical bodily injuries each year due to unsafe mining practices with poor adherence to Health & Safety standards. Accidents and deaths result either directly from unsafe mine practices or indirectly from mining related diseases and illnesses.

The underlying cause of these accidents may be a lack of education, training and awareness for miners emphasizing the importance of occupational safety and health. The lack of knowledge and skills on safe mining and processing techniques contributes to the ever increasing cases of health and safety problems. Moreover, it results in environmental issues.

Most miners settle in very poor traditional housing conditions. Some miners live in make-shift shelters next to mining sites and rivers to avoid long travel to work and to protect their land/leases from thieves and invading miners. These shelters hardly offer comfort and protection from bad weather conditions, landslides, floods and thieves. Mining sites are located in very isolated and dangerous geographic settings. Some mining activities are done next to homes/villages and near public infrastructure such as roads, bridges and power pylons.

Most rivers are polluted with mercury, sedimentation adds to the problem and thus water shortage and sanitation is a common problem in most mining communities. Half of the miners are school-aged kids, women and children who are particularly vulnerable to hazards encountered in mining sites, such as mercury poisoning and sicknesses such as malaria, HIV/AIDS, diarrhea, respiratory diseases and joint dislocations. Miners are also at risk of been robbed. To forget pain, miners turn to drugs and alcohol. In addition, the influx of people in search of business opportunities into mining communities poses high risks of the spread of HIV/AIDS and STIs.

Safety methods of mining are of paramount importance in small scale mining. There are many unreported deaths and accidents related to SSM in Papua New Guinea. Personal Protective Equipment (PPE) has never been used in SSM activities despite the fact that it is affordable.

Disease outbreaks, such as cholera, are common in mining communities and some contributing factors are poor sanitation, hygiene and water contamination. Most interviewed miners mentioned that after long hours of hard work or handling of mercury, many never bothered to wash or clean themselves. Women miners as housekeepers prepare food for their families coming straight from the mine site without cleaning themselves. Simple hygiene and cleanliness is totally absent in mining communities.

### **Child Labour**

Most school-aged children are seen in mining sites and along river banks after school and during weekends. Others who live near mining sites do not go to school at all and the lack of educational infrastructure is a contributing factor to the high drop-out rates. Many children leave school in order to mine to support themselves with school fees and money for other necessities because they have to mine in order to support parents to look for school fees. Some decide to leave school themselves to earn their living and own things like their friends from working families have. Others, who are not directly involved in mining, leave school just to transport goods from nearby airdromes to mining sites to earn some money.

Most children and infants brought to mining sites are exposed to hazards such as dust, falling objects, noise produced by machinery, inhalation of mercury fumes from amalgamation and ingestion of mercury. Children are engaged in long hours of panning, sluicing, manual handling of heavy objects, amalgamation and retorting without proper safety gears or PPE.

### **Mercury**

Mercury is used by about 80%-90% of small scale miners in all alluvial and hard rock mining sites. Although no studies have been conducted to get actual figures, participants interviewed at the small scale mining training centre, both from alluvial and hard rock mining areas throughout the country, mentioned that mercury was the only useful chemical – “gol marasin” (gold medicine) – to recover their gold. Many participants and miners visited at their mining sites even mentioned that they were not aware that mercury was poisonous and incurred health risks.

The most vulnerable people who are pregnant women and children are involved in open mercury amalgamation and retorting. Cooking utensils used for mercury amalgamation are sometimes reused for food preparation (?). Open fires that are used for amalgamation are used again to burn potatoes or bananas for consumption or cook food for families. Mercury and black sand after amalgamation is directly disposed into the river system. This is dangerous to people who live downstream and are dependent on fisheries. Polluted rivers are still used for washing and drinking which is very dangerous to people’s health. This causes mercury related health risks such as respiratory problems, nausea, nervous breakdown and even death if methyl mercury is taken into the body.

## **Environmental Impacts of Small scale mining.**

The impacts of small scale mining on the environment varies according to geographical setting and methods of mining used. The risks involved include tree cutting and digging, destruction of vegetation and top soil exposure, soil erosion, river/water pollution through the use of mercury and discharge of particulate matter , acid mine drainage, mercury vapor and clouds of dust emissions and many others. Environmental degradation is severe when thousands of miners are spread throughout the country.

Threats posed by these environmental destructions include loss of biodiversity and extinction of unique and endangered species. For instance, in the Wau/Bulolo area, illegal mining is happening in protected areas such as the McAdams National Park known to protect the "clinky pine tree", the world's tallest tropical tree and a native plant. Excessive and unnecessary clearance of vegetation in search of gold without revegetating the land results in high occurrences of soil erosion, landslides in parks, near villages and public infrastructure. Pollution of rivers by mercury and sedimentation is a threat to villagers depending on fisheries downstream for livelihood. River diversions to recover alluvial gold destroy low lying villages and roads. River organisms also suffer from these river diversions. Forest destruction and emissions of dust are also contributing factors to global warming when looking at it at a global scale. Mercury and other chemical spillages may contaminate ground water that most people around mining communities depend on.

## **Economics of Small Scale Mining.**

No financial institutions or credit schemes are specially designed to provide financial support to small scale miners. The Nationwide Micro bank in Wau which was established by the World Bank/JSDF project purposely for miners do not have small scale miners as their regular clients. Most miners are known to be illiterate and generally have a 'don't care' approach to how they manage their money. Small scale mining can be a possible avenue to alleviate poverty if right financial mechanisms are put in place and if follow-up on projects from the World Bank and other similar projects are monitored.

### **i) Lack of access to credit and finance**

Apart from technical education, small scale miners also need financial assistance to be able to engage more independently in mining and to obtain greater benefits from their labor. Small scale miners generally tend to have lower levels of formal education. Moreover, they have less or no forms of collateral to guarantee them to get financial support from commercial institutions. So this implies that small scale miners have limited means to raise funds to buy mining equipment, finance trips to better gold markets, or meet application fees for mining leases etc.

In general, small scale miners in PNG find it hard to obtain financing from commercial institutions. The banks are cautious of getting involved with the small scale mining business as they consider it to be of high risk. This is due to a lot of factors including

- (i) the miners have little or no collateral to offer as security for the loan,
- (ii) they have no credit record,
- (iii) they have little or no proven management skills,
- (iv) they have irregular earning potential, and
- (iv) they lack capacity to deal with officials and rather complicated paperwork involved.

## **SOCIAL ISSUES ASSOCIATED WITH SMALL SCALE MINING.**

### **HIV/AIDS, Gender Equality & Personal Viability.**

Production in large cash and migration of people into mining communities have resulted in the increase of alcohol and drug abuse, gambling, violence against women, prostitution, marital problems, lack of education and general lawlessness. As a consequence of this social disorder, HIV/AIDS is a growing concern in all small scale mining communities. Young women and mothers, struggling to make a living, tend to get involved in sex trade and prostitution to support themselves and their families or to meet the high cost of living. Low literacy levels have contributed to the rise in HIV/AIDS cases because relevant and sufficient information is not clearly understood. Generally, many indigenous people view HIV/AIDS and gender equality as violation against their traditional values. It is therefore difficult for them to come out freely and openly to accept and learn about these issues.

At first sight, gender equality is unflawed in small scale mining activities. For instance, a survey was conducted by trainers from the small scale mining training centre in October 2009 to collect information on Gold recovery, Mercury usage, Occupational Health and Safety and other related issues. The survey was conducted in and around the Wau/Bulolo area. During the survey, views of men regarding their women folk's participation in mining were collected. Almost 100% of the male miners' response towards women's participation was positive. When asked how they felt about women's involvement in mining "most said that they had no problems working with women because both parties depended on each other for fast and satisfactory gold production, women were needed to reduce the work load. There was absolutely no discrimination observed in the mining activities carried out between male and female miners during the survey. In contrary, women are still seen as introverts and are not actively involved in decision-making.

Cultural norms are the obvious barrier to many positive achievements by small scale miners and may be an obstacle to achieving and addressing other sustainable development issues. In order to change these cultural perspectives of indigenous people gradually, the values, perceptions, attitudes and behaviors of individuals for a positive living and self reliance is important. These can help people to have respect for themselves, other individuals, public property, the environment and have a sense of responsibility in what they do.

Cross-cutting issues faced by small scale miners may not be addressed successfully if capacity building programs are gender neutral/biased. Both, men and women, should be part of awareness and training programs aimed at dealing with women's issues so that a holistic approach can be taken to address problems faced by women and men alike.

Small scale miners have not been adequately represented in associations and other organized activities to air their views, concerns and grievances related to impacts brought about by mining activities in general. Promoting small scale miners and advancing the cause of gender equality that is already present may overcome these barriers and achieve sustainable development.

## **OTHER CONSTRAINTS OF SMALL SCALE MINING.**

### **i) Legal and administrative constraints**

There is no specific law governing the Small Scale Mining sector like in other countries where small scale mining exists. Unfortunately, the PNG Mining Act as well as the mining regulations mentions the small scale mining sector only briefly. There is no gender equity provision, nor any reference made to that effect in these documents. It is disappointing to note that the existing legal framework in mining does not support women in mining, let alone women in small scale mining.

### **ii) Lack of representation and support**

Small scale miners for a long time have been invisible and have been hiding under their domestic roles. There has not been an opportunity to organize them under a structure to represent their interests. Currently, there is one miners association, which is not active now, called Wau-Bulolo Gold Miners Associations. Provision has been made for a female deputy chairperson under its constitution. However, experience shows that community women feel intimidated to speak up and represent their women folk in this context. On the other hand, the male representatives tend to accommodate the female representative with respect and courtesy but the decision making and control firmly rests in the men's hands. Women should be encouraged to form their own female miners' association or working group to represent their interest in small scale mining.

## **ROLE OF WOMEN IN SMALL SCALE MINING**

In addition to their household chores women are involved in SSM as either miners (producers) or support service providers to the mining communities.

### **➤ As a miner (involved in direct production)**

Small scale mining activity in PNG is mainly in mining gold. To mine the women miners need technical skills such as know-how to mine, how to sell, how to source finance, how to manage income from sale of gold etc.

### **➤ As a service provider (involved in providing support services)**

Small scale mining activities usually take place in remote locations and obviously mining communities are created by the migrating population, either coming from outside or the local land owners themselves. Women in mining communities position themselves to provide support services such as store goods, garden produce, mining tools or even trade in gold. To provide support services women must identify a commercial opportunity, organize resources and market these. They need to have the know-how in business, how to source finance, skills and know-how in the type of service they want to provide. For example,

- (i) if a woman wants to buy gold (gold trader) she would need to know how to buy and sell the gold. That is, she must know the gold grades and what prices to offer, where and how gold is processed, identify a market, how to save & invest etc.
- (ii) if a woman wants to run a trade store she would need to assess the demand and potential customers, know how to source store goods, organize transport, how to deal with competition, how to cost and price the goods, control stock etc.



➤ **As a home maker (involved in providing care and support to her family)**

Women in SSM communities need to manage their homes as this is their primary responsibility. They must ensure that their families are strong, healthy, and wise. To provide strong and sensible support for their families, they must know how to budget and spend money wisely, care for their families' health, hygiene and safety, manage and use time productively, provide direct support to their husbands, such as keeping record of mining activities etc.

Therefore, the empowerment of women in SSM has many different aspects to be considered. However, common empowerment problems and issues are experienced by women in PNG and women world-wide that undermine and hinder the participation and progress of women in SSM.

### **CONSTRAINTS OF WOMEN'S PARTICIPATION IN SMALL SCALE MINING**

It was discovered by officers in the JSDF Project that the majority of small scale miners in PNG lacks basic education. Miners in Wau-Bulolo area were found to have less basic education than miners from other parts of the country. Illiteracy rates among both, male and female miners, are high, which has affected their ability to read, write and understand the training materials.

The lack of basic education and widespread illiteracy has compounded the problems of women and greatly hindered the participation and progress of women in SSM. The following factors have been identified, from our own experience and also from studies conducted on women in SSM, to limit the women from mining at the same productive rate as the men miners.

**i) Women have less technical know-how than their male counterparts**

A number of factors contribute to this lack of know-how. First, women in general tend to shy away from getting involved in anything of technical nature. Second, the stereotype view of society that women are not capable of handling anything technical. Third, women, being always in a subordinate position, lack the access and control over resources to develop their capacity through education and training etc. Fourth, the women stay hidden under their domestic roles and they have comparatively fewer opportunities than men to gain practical mining experience, and to be exposed to assistances programs etc.

Mining has always been a technically oriented activity so for women to get involved they have to get over these hurdles. I must say, sometimes the technical aspects of mining are over emphasized just to create a barrier for women to get involved.

**iv) Lack of management and administration skills**

Women miners' lack of basic education is a major contributing factor that undermines their entrepreneurial ability. It is all very well to acquire some knowledge and understanding about business management but the problem is the inability to transfer and apply the knowledge and skills learnt to one's own work situation.

**v) The traditional beliefs and values**

The existing cultural/ traditional beliefs and values place a heavy burden on the women miner and that limits her independence and mobility. For example, the traditional 'division of labor' that imposes a heavy family burden on the women leaves her little time to engage in mining. The heavy involvement of men in mining does not help her situation. In contrary, it only relegates the women to

domestic roles. Moreover, the subordinate position of women in our society disadvantages her in terms of access and control over resources such as mining land tenure.

### **WHY PROMOTE AND SUPPORT WOMEN IN SMALL SCALE MINING?**

1. Evidence suggests that small scale mining enterprises owned by women are generally better managed than those under male control.
2. Women, on average, are more concerned with environmental, health and safety issues of mining than their male counterparts.
3. Women appear to be much more likely to spend mining incomes on children and the running of households than the men, who are instead prone to wasting it on drinking, prostitution, gambling and personal gratification.

For these and many other reasons, it is clear that greater female involvement in SSM is not only important, but also for the positive 'knock on' effect it would have on the lives of children, families, local communities, and the environment.

Women, as much as possible, want to get involved in SSM; the sector is not very well developed in the country. Little attention was given to this sector until recently (2004) when donor organizations such as World Bank, EU, Japanese Social Development Fund (JSDF), and AusAid decided to fund projects through MRA in this sector. Slowly, through these project interventions, the sector is getting the much needed boost making it possible to realize the potential benefits from this sector which was previously untapped. Women in SSM, however, have very much stayed invisible and silent all this time. Lately, the empowerment of women to actively participate in small scale mining has been advanced. Our presentation at this conference is a way of public announcement that women in SSM are coming out of their closet to become equal partners with the male miners.

However, given the status of women in the sector so far, the gap between women miners and men miners is wide in terms of women mining productively as well as the men. Factors that hinder women from equally participating as well as the men have to be addressed.

### **CURRENT INITIATIVES AND PLANS TO ADDRESS THE EMPOWERMENT OF SMALL SCALE MINERS IN GENERAL.**

The lack of empowerment of Small Scale Mining has been acknowledged and there are current initiatives and plans to address the problem.

One of the initiatives that will have the greatest and direct impact on the challenges faced by small scale miners in the Small Scale Mining sector and the gradual achievement of sustainable development issues is the Wau Small Scale Mining Training Centre.

#### **1. WAU SMALL SCALE MINING TRAINING CENTRE**

The Wau Small Scale Mining Training Centre which was opened on 7th May 2009 and is funded by European Union Mining Sector Support Program and facilitated through the Small Scale Mining Branch of Mineral Resources Authority of Papua New Guinea. The project is managed by Projekt-Consult GmbH of Germany. Projekt-Consult GmbH is engaged in the management of the execution of projects in international cooperation programs.

The Small Scale Mining Training Centre is based in Wau, Morobe Province. The training centre is based in Wau because it was a colonial mining township and well known for the gold rush in the early 1920s. The training centre comprises classroom facilities, administration blocks, dormitories for females and males respectively, canteen and a demonstration shed for simulation activities.

## **1.2 Training programs and courses taught.**

### **i) Training of Trainer Program**

A program which involved the training of trainers who then become trainers at the training centre was initiated after the inauguration of the centre. This training was for the duration of six months and was conducted on need basis. The 8 graduates from the initial TOT program are currently conducting training for the miners. The trainers have different backgrounds and professions ranging from geology, environment, mining & engineering, chemistry, teaching, business and technical background. Knowledge and expertise from these diverse backgrounds are put together with the help of hired consultants to develop training materials on issues related to mining.

### **ii) Small Scale Miners' Training Program**

The training program is divided into four levels of study starting from the basic courses in level 1 and increases in complexity with subsequent higher levels. Training is conducted on two levels. The theoretical aspect of the training is the trainer to participant interaction, role plays and discussions during training. The practical aspect of the training is when participants are taken out into the field to have hands on experience, site seeing or conduct simulation activities to enforce their theoretical knowledge. The contents of the training courses are organized as modules under the four levels as shown in table 1. After the participants complete each level of course, a certificate of attainment is presented after the required period of study is completed.

#### **Levels of courses offered at the Small scale mining training centre.**

There are four levels of courses offered at the small scale mining training centre.

The courses under the higher levels of study are building up from the basic levels so the levels will have to be followed through to complete the requirements of the training program.

The training of small scale miners started in September 2009. So far SSMTC has trained seven batches of participants that have undergone training in Level 1 courses. Level 2, 3, and 4 courses are under development and will be introduced at a later date.

**Table 2.**

Course Level	Attainment	Course Duration
Level 1:	Certificate 1 in Small Scale Mining	2 weeks
Level 2:	Certificate 2 in Small Scale Mining	2 weeks
Level 3:	Certificate 3 in Small Scale Mining	2 weeks
Level 4:	Certificate 4 in Small Scale Mining	2 weeks

## SSMTC COURSE STRUCTURE

The trainings conducted in the training centre address almost 100% of all the constraints/challenges as mentioned earlier in this paper. Since small scale mining regularly tops the list of the world's worst pollutants and causes severe environmental destructions as published by international watchdogs, the training centre ensures that the topic of **responsible mining**, the underlying objective of all the trainings that are conducted, is addressed in all the modules. Appropriate technology and best practice methods are encouraged in the training. Table 3 and the following text briefly discuss the contents of the modules/topics taught at the training centre to overcome some of the challenges faced by small scale miners.

**Table 3:** Course modules offered at the training centre.

Module (M) No.	Course Module	Levels Covered
M1	Background information on small scale mining in PNG.	1
M2	Laws governing Artisanal & Small Scale Mining in PNG.	1, 2, 3 and 4
M3	Geology and Gold	1,2, 3 and 4
M4	Prospecting Techniques	2, 3 and 4
M5	Mining and Processing Techniques.	1, 2, 3 and 4
M6	Occupational Health, Safety and Welfare	1, 2 and 3
M7	Environmental Impact of Mining	1 and 3
M8	Mercury	1, 2 and 3
M9	Making Small Scale Mining a Business	1, 2, 3 and 4
M10	Social issues (Gender equality and Personal Viability)	1, 2, 3 and 4
M11	HIV/AIDS Awareness	1 and 3

### Module 1.

Background information on how mining started in PNG and first gold discovery are taught to participants to appreciate the progress of mining industry in the country and also to appreciate what our fore-fathers did in the past. This module also highlights how traditional mining eventuated into modern mining and distinguishes small scale mining, medium and large scale mining in PNG. The module also briefly introduces what will be expected of other modules and the expected outcome from the course participants.

### Module 2

Laws governing artisanal and small scale mining are covered in this module. There are actually no specific laws governing this sector however relevant clauses from the three major laws/Acts governing large and medium scale mining in the country are used to address legal issues of SSM. Although code of practices in mining on environment, safety and mining exist, these laws are seen to be insufficient to address growing legal issues in SSM sector.

Laws are important as it will make miners know that their activities are law abiding and violation of these laws will serve severe penalties. This can make miners feel responsible and cautious in the way they mine, be safety conscious and protect their environment.

Other international laws related to small scale mining such as Labour laws are made clear to miners.

- **Child labour**
- **Health and Safety at Workplace**
- **Gender equality and Discrimination**
- **HIV/AIDS at Workplace (Discrimination)**
- **Elimination of forced and Compulsory Labour**

### **Module 3**

Geology studies help miners to know the fundamentals of how gold is formed; its properties and areas where gold can be found. These helps miners to locate gold bearing areas easily thus increasing their gold productions. Buying and selling of gold is also a risky business so simple tests to distinguish between gold and other metals is also taught. Simple calculations on gold prices are taught to miners so that they can have a fair idea about the money they will receive when they sell their gold to buyers.

### **Module 4**

Prospecting techniques helps to understand how placer gold deposits are formed. Failure to sample and estimate properly can result in a tremendous waste of money and effort. This also helps in unnecessary destruction of the environment such as clearing of the of forests and vegetaion. Prospecting techniques helps to learn basic sampling techniques of placer deposits and estimate the economic viability of the resource.

### **Module 5**

Mining and processing techniques encourage small scale miners to improve their mining techniques from artisanal to semi-mechanized or mechanized level. This helps miners to improve their technical know-how to overcome the traditional methods of mining and increase gold productions. This module also highlights appropriate technology of mining techniques such as the use of environmentally friendly mining equipment, construction techniques in reducing environmental impacts such as sedimentation, soil erosion. The gold recovery techniques and equipment are also covered in this module

### **Module 6**

Occupational Health and safety is taught to educate small scale miners to become knowledgeable in aspects of occupational health and safety matters. The knowledge and skills acquired will help artisanal miners lessen and avoid the possibilities of having mining related accidents, injuries and associated diseases. Basic knowledge on personal health, hygiene and nutrition are delivered to miners to take care of their bodies, be clean and have a nutritious diet.

### **Module 7**

The Environmental module highlights the relationship and importance of the environment to humans and other organisms. This helps the miners to appreciate and have at the back of their mines how important the environment is and have a sense of responsibility in the way they mine. Environmental impacts and effects of small scale mining are taught to make miners aware of the type of destruction they cause to the environment and the consequences of those impacts. Most importantly, climate change effects of mining are also pointed out. Ways on how to minimize or reduce environmental impacts are also enforced in the module. More emphasis is placed on the rehabilitation after they cease operation or move on to another location to do mining. In addition, social issues associated with environmental impacts are also made known to the miners so that precautionary measures are taken to avoid been victims.

## **Module 8**

The mercury module is designed particularly to help small scale miners to understand and recognize the dangers associated with the use of mercury. It also discusses the safe use and handling to avoid poisoning small scale miners. The module identifies three different types of mercury that exists and how it is harmful to humans, other organisms and the environment. Ways to avoid or minimize environmental pollution and its effects on humans such minimal use of mercury and other alternative methods of recovering gold are also discussed.

## **Module 9.**

Economics of small scale mining equips miners to run their small scale mining activity as a business. It helps miners with procedures on how to apply for bank loans to assist their SSM activity or other spin-off businesses. Covered in the module is also the obligation of a small scale mine, the obligation of that activity towards the owner of the mine and the obligation of the small scale mine owner. This ensures that a mine owner/lease holder is obliged to take care of all its assets and that includes his/her labour force, treat his/her business as a entity of its own and be aware that, the business has an obligation in meeting the well-being and livelihood of the owner. This helps miners to figure out how important a small scale mining business may be to them. It provides miners with basic knowledge on how to keep daily income and expenditure books on running a small scale mine as a business. Businesses of such nature may help indigenous communities to have a successful business and live a better life. This is one possible way in alleviating poverty in rural areas.

## **Module 10.**

The module on social issues is aimed at overcoming gender equality issues in the small scale mining sector. Papua New Guinea is a nation with diverse cultural and traditional values that hinders gender equality. Most women are seen as been inferior to their male counterparts especially at the grassroots level. This module helps to identify social and cultural influences on males and females roles in society. It clarifies that as social human beings, we need each other for care and support regardless of the biological aspect. Cultural aspects are our way of life, how our ancestors passed on their beliefs down from generation to generation. Rights, powers roles and responsibilities are also discussed in the module. It identifies cultural or social perceptions against biological capabilities. It indicates that almost all the roles a woman does can be done by a man accept for child bearing alone thus women and men are seen as equal. In addition, personal viability discusses moral standards and principles for one to be successful in life. Good behavior and attitude, respect for oneself and others as well as property are some issues discussed in this module. Being viable helps to be self reliant and determined to be successful in life and in what one does.

## **Module 11**

General awareness training on HIV/AIDS is discussed in this module. Identifying ways in which HIV is contracted and how it ca be avoided are mentioned. Risk groups and risk behaviors are pointed out in the module to let miners know that they are likely of contracting HIV if they are not careful. Care and support to people living with HIV/AIDS are also made aware to small scale miners. HIV/AIDS discrimination is common in indigenous communities therefore the training points out that HIV positive people are able to perform duties like any other normal person. The HAMP Act of Papua New Guinea is also used to enforce the training on HIV/AIDS issues especially discrimination. Measures taken to avoid acquiring HIV such as role plays on the correct uses of condoms are also conduct during the training. Women been most vulnerable and often the most victimized group

benefit from the training because the dangers of sex trade and prostitution are pointed out clear to them.

### 1.3 Proposed Outreach Program

The Outreach Program involves trainers going into the mining communities to provide capacity development support for the miners in their actual work situations. The program comprises two components.

- i) **Trainee trainer link.** Trainers will visit the trainees in their mining communities. The purpose of the visit is twofold:
  - (a) the trainers would check on the participants if they are applying the knowledge and skills attained from SSMTC and provide remedial support where necessary and monitor their support.
  - (b) the participants would provide the link for other miners in their communities with SSMTC.
- ii) **Mobile training.** A vehicle fitted with teaching equipment will be purchased to conduct training in rural areas that are accessible by road.

### HOW SMALL SCALE MINING TRAINING CENTRE WILL HELP SMALL SCALE MINERS TO ACHIEVE SUSTAINABLE DEVELOPMENT.

The Wau Small Scale Mining Training Centre delivers training to;

- promote greater gender equity as enshrined in the national development goals of the government at independence. To go with the development maxim that gender equity is a crucial requirement for positive transformation in society.
- The Millennium Development Goals (MDGs) assign for the collective responsibility to halve the world's poverty by 2015 and also explicitly commits to gender equality as an end in itself: SSM sector is associated with rural communities and therefore has a great potential for creating employment, poverty alleviation and rural development. Also, bearing in mind the notion that *'no individual must be denied the opportunity to benefit from development.* The equality rights and opportunities of women and men in SSM must be addressed as well.
- overcome problems encountered during mining activities and empower small scale miners to venture into small scale mining businesses and other spin-off activities.
- Improve technical know-how to increase gold production for the benefit of themselves and the country as a whole.
- Be health and safety conscious
- Educate small scale miners on HIV/AIDS and other STIs.
- Be able to be self reliant as stipulated in the Medium Term Development strategy, manage money and have a saving culture.
- have a stronger voice in community-related decision-making processes to address women's needs

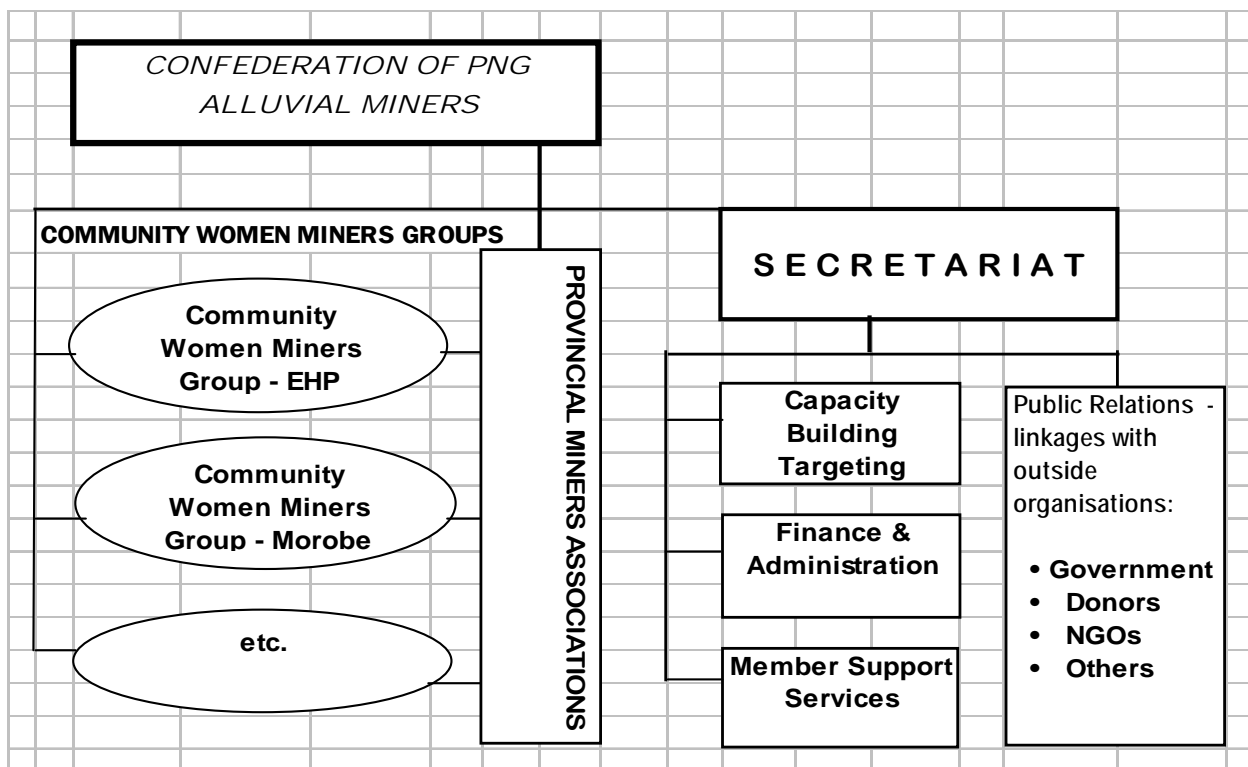
Mining is not a gender-neutral activity. Women and children tend to bear added costs and risks whereas the benefits and advantages tend to accrue mostly to men. Capacity building programs are options to assist and empower women in both, rural and urban settings.

The small scale mining training centre is one such initiative. Capacity building institutions related to mining and other responsible organizations should;

1. ensure women from mining communities be empowered to better organize themselves to overcome problems related to small scale mining activity by addressing issues related to SSM.
2. improve women’s access to basic education and financial benefits
3. Ensure the availability of reliable market access within the small scale mining industry
4. promote women’s rights and push for gender equality
5. provide training and identify means to empower women in community-based development and sustainability issues
6. give opportunity to women who may want to venture into the mining industry

## 2. PROPOSED ORGANIZATIONAL SUPPORT FOR WOMEN SMALL SCALE MINERS IN PNG

The women miners’ representation will be organized as working groups and has been proposed as a simple but suitable structure for the community women to manage. The women miners working groups will be community based and would have the opportunity to develop horizontal relationships with the male miners’ groups in the area. The women miners groups will also develop vertical relationships with their affiliation with the provincial association, the confederation of miners and the secretariat.



### UP-COMING PROJECTS POTENTIAL BENEFIT TO (WOMEN) SMALL SCALE MINERS

There is a proposed World Bank project coming up soon which has a mining extension services component for the small scale mining sector. Within this component there is an opportunity to collect baseline data on small scale miners, including women miners. Having no baseline data in the



sector had been a critical issue with previous and current donor funded projects. This need will be addressed thus the way forward will be more beneficial in terms of directing capacity development programs for greater impact than previously done.

### **MAJOR CONCERNS OF SSMTC AND SMALL SCALE MINERS OF PAPUA NEW GUINEA.**

The small scale mining training centre is a vocational type of institution touching the lives of indigenous communities of Papua New Guinea. The training has not only graduated people with mining background but people from all walks of life.

Both female and male participants who attended the training varied from actual miners to non-miners. The training center has attracted men and women from various backgrounds such as teachers, nurses, teenage students, grassroots, the illiterate etc... and the likes.

The major concern of the small scale mining training centre is its **sustainability** after European Union funding ceases in October of this year, 2010. The training centre is at its infant stage and questions of its sustainability for the benefit of tens of thousands of small scale miners and non-miners of Papua New Guinea are at stake.

Will the Government of Papua New Guinea, responsible organizations and stakeholders be able to carry-on with what European Union will leave behind?

**As stated in the review of implementation of Agenda 21 and the Johannesburg Plan of Implementation on mining, “minerals are essential for modern living and mining is still the primary method of their extraction.” On the contrary, “mining activities still generate adverse social and environmental impacts on communities living near extraction sites” It further states that, “ efforts are therefore needed to increase the positive economic impacts in producing countries and minimize the negative social impacts with the support of international community”**

**As far as the preceding statement by the Secretary-General of United Nations is concerned, small scale mining in Papua New Guinea can advance into achieving sustainable development if there is a fair system of governance and the development of sound and people-based policies and frameworks. Assisting our government and responsible organizations by international organizations in key areas may bring a positive impact.**

**Some key issues/questions and recommendations to assist the training centre and the small scale miners of Papua New Guinea are collected in table 4.**

**Table 4: Key Issues and Recommendations.**

	<b>Key issues/questions related to SSM in PNG</b>	<b>Suggested recommendations or ideas to overcome these challenges.</b>
1	<p>Updated data, mapping on alluvial gold occurrences and general statistics on the total population on small scale miners and communities are lacking and has no record at all. Small scale mining sector has contributed significantly to rural and economic development of this country unfortunately that silent contribution has not been recognized fully.</p>	<p>A baseline survey, data collection and statistics on small scale mining in Papua New Guinea are vital to use in order for developments to be successful in the sector.</p>
2	<p>There are 3 different contexts of SSM in PNG.</p> <p><b>a)</b> SSM activities co-exist within Mining leases/in areas where large mines operate.</p> <p><b>b)</b> SSM activities on customary land</p> <p><b>c)</b> SSM activities on traditional land acquired by the Government and leased to small scale miners.</p> <ul style="list-style-type: none"> <li>• Each of these areas face different challenges/ issues and needs to be addressed separately and accordingly.</li> </ul>	<p><b>a)</b> Initiatives by large scale mines.</p> <ul style="list-style-type: none"> <li>- Currently OK Tedi Gold/Copper mine through the Papua New Guinea Sustainable Development Programme has initiated a Pilot Project on small scale mining to assist the economic well-being of local communities after the mine closure.</li> <li>- Points <b>c)</b> and <b>d)</b> are addressed by Mineral Resource Authority of PNG through the Small scale mining training centre.</li> </ul>
3	<p>Based on the above contexts, many challenges/issues are faced that hinder sustainable development.</p> <ul style="list-style-type: none"> <li>• Environmental destruction, pollution of air, land and rivers/seas, threat to public infrastructure from illegal mining, loss of biodiversity</li> <li>• Careless handling of mercury which many miners' health particularly women and children are put at risk.</li> <li>• Occupational Health, Safety and welfare are 100% absent in all small scale mining activities.</li> <li>• Social disorder in mining communities leading to rise in law and order problems, increase in HIV/AIDS and STIs, marriage problems, child labour and most school aged children not going to school.</li> <li>• Lack of technical know how to improve their gold production.</li> </ul>	<p>1. These challenges are addressed by the Small scale mining training centre through the training programme</p> <p>2. There are other programs proposed to support the training.</p> <ul style="list-style-type: none"> <li>- <b>Outreach Programs</b> in rural areas to monitor and help participants in all the trainings we conduct at the training centre..</li> <li>- <b>Mobile training</b> programs where trainings will be conducted in rural areas to give a chance to people who may not be able to attend the training.</li> </ul> <p>There are proposed plan on environmental rehabilitation on waste land left by colonial mining to enforce theoretical knowledge on rehabilitation after mining ceases.</p> <p>This idea can be extended to other areas of the country to reduce environmental degradation.</p>

4	<p>Economics in small scale mining is a key issue in addressing poverty alleviation within indigenous communities. Some constraints faced are;</p> <ul style="list-style-type: none"> <li>• Lack of Financial Support to purchase equipment/machinery.</li> <li>• Lack of adequate access to finance and credit schemes.</li> <li>• Lack of Management and administration skills</li> <li>• Difficulties in linking up to gold buyers with good markets.</li> </ul>	<p>Mechanisms to help people having easy access to finance and credit schemes should be in place within financial institutions.</p> <p>Refineries and assay laboratories should be established within the country and run by companies/organizations that are financially capable.</p> <p>National, regional and local miners associations should be established to assist individual miners to have access to loans and other financial support.</p>
4	<p>Small scale mining is unregulated and it is believed that most gold produced by small scale miners is smuggled out of the country. Currently, there are no nationally owned refineries thus most gold produced by small scale miners is sold to private-run refineries. Due to the fact that there are no regulatory frameworks for small scale miners, environment impacts, safety related deaths and dispute over land issues are grave concerns in SSM.</p> <ul style="list-style-type: none"> <li>• Legal and administrative constraints in the sector.</li> </ul>	<ul style="list-style-type: none"> <li>• Specific laws/regulatory frameworks on small scale mining should be drafted to address legal aspects of small scale mining.</li> <li>• Nationally owned refineries/assaying laboratories can provide fair gold prices, provide assaying results and monitoring systems can be put in place to monitor the movement of gold in and out of the country. This can be one area where levies from Gold exports can be used to help with the sustainability of the training centre after the term of the European Union Project is over.</li> <li>• International environment organizations and local NGOs, research centers can assist in providing technical expertise for rehabilitation purposes.</li> </ul>
6	<p>Mercury has been carelessly used since the first discovery of gold. There are no records of the effects of mercury on humans. People may be dying of mercury related diseases and the government and the international community are turning a blind eye on this issue in PNG.</p>	<p>Surveys on mercury usage, mercury handling and the sale of mercury should be conducted to know how mercury is generally used by small scale miners in Papua New Guinea. A database created from this survey can then be used to monitor the effects of mercury on people so that appropriate measures can be taken.</p>

## **CONCLUSION**

For social and cultural reasons women were not allowed to mine in the early days because the nature of work was considered too risky for them to get involved. Men miners were happy to keep their women away from mining and rather kept them busy with domestic responsibilities. However, changes brought about by socio-economic circumstances of the 1970s, 80s and 90s in the small scale mining sector forced the women into mining. The women miners in SSM are here now; we cannot ignore them nor pretend that they do not exist. Up until now the women miners have stayed silent and invisible so through such effort we would like to bring them out of their hiding places and present them for attention and recognition.

The constraints that affect the small scale miners in their efforts to be productive have been presented. It is encouraging to acknowledge that important initiatives such as the Small Scale Mining Training Centre would go a long way to promote, empower and build the productive capacity of small scale miners. Other complementary initiatives such as the development of miners associations to give a voice to small scale miners, including women miners, in the country are crucial in the development of the small scale mining sector. Assistance is required to develop the structural and organizational capacity of the miners in the country so that small scale miners' specific needs can be addressed.

The small scale mining sector directly supports rural communities by providing a means of livelihood. The sector is here to stay while other large mining operations will come and go. So to achieve real sustainable development outcomes for a greater number of the population in the country MRA will need to reconsider its focus. MRA will be 'putting its money where the mouth is' by leading the development of the SSM sector. The work of international development agencies such as World Bank, EU and JSDF would ideally complement the initiatives of MRA to bear on the development of this important sector in the country.